

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Appl. No.: 10/533,329

Applicant: McCormick et al

Filed: May 2, 2005

TC/A.U.: 4124

Examiner: Amene S. Bayou

Docket No.: 1290US2

Commissioner for Patents

P.O. Box 1450

Alexandria VA 22313-1450

APPELLANT'S REVISED BRIEF UNDER 37 CFR 1.192 A

ATTENTION: Board of Patent Appeals and Interferences

I REAL PARTY IN INTEREST

The real part in interest in this case is Graco Minnesota Inc., assignee of the above-identified application.

II RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III STATUS OF CLAIMS

1. Claims 1 and 2 are rejected and the rejection of those claims was appealed in the notice of April 30, 2010.

IV STATUS OF AMENDMENTS

The amendment filed September 28, 2009 has been entered.

V SUMMARY OF THE CLAIMED SUBJECT MATTER

The proportioner 10 shown in Figures 1 and 2, has a variable speed controlled DC motor 12 having a gearbox 14 and crankshaft 16 at either end which are connected to reciprocating piston pumps 18. The outputs 18a of the two pumps 18 are fed to heaters 20 and thence to a manifold 22 where the pressure of each output is measured by pressure sensors 24.

The user sets a setpoint pressure (e.g. 1000 psi) and the controller 26 then compares the pressures of the two components and controls the higher of the two relative to the setpoint. Because of variations in viscosity and temperature, even though equal amounts of each component will be pumped (for mixing at the spray gun or other applicator) the pressure might be higher on one side or the other. Thus the controller 26 continually compares the pressures and regulates the higher one to the setpoint.

Ratio assurance is monitored by continuing to look at both output pressures. If one side falls below a predetermined percentage of the setpoint (50% in the preferred embodiment), an alarm may be raised or operation stopped by the controller 26. Of course this threshold percentage may be varied.

1. A proportioner 10 for dispensing plural component materials, said proportioner 10 comprising:

a variable speed electric motor 12 having a shaft and first and second ends, said shaft extending from each of said ends;

a first reciprocating piston pump 18 attached to said first motor end, said pump being connected to a source of a first material and having an output 18a which has a first pressure;

a second reciprocating piston pump 18 attached to said second motor end, said pump being connected to a source of a second material and having an output 18a which has a second pressure, said pumps simultaneously pumping said materials to an applicator without passing through another pump; and

a controller 26 with provision for a user-selectable pressure setpoint, said controller continually comparing said first and second pressures and regulating the higher of said pressures to said setpoint, said first and second pumps 18 being the only pumps between said material sources and said outputs.

2. A proportioner for dispensing plural component materials, said proportioner comprising:

a variable speed electric motor 12 having first and second ends;

a first reciprocating piston pump 18 attached to said first motor end, said pump being connected to a source of a first material and having an output 18a which has a first positive pressure;

a second reciprocating piston pump 18 attached to said second motor end, said pump being connected to a source of a second material and having an output 18a which has a second positive pressure, said pumps simultaneously pumping said materials to an applicator without passing through another pump; and

a controller 26 with provision for a user-selectable pressure setpoint, said controller continually monitoring said first and second pressures and providing an alarm in the event one of said pressures falls to a predetermined percentage of said setpoint.

VI GROUNDS OF REJECTION TO BE REVIEWED

1. Whether claims 1 and 2 are unpatentable under 35 U.S.C. §103(a) over Senf in view of Cline et al.
2. Whether claims 1 and 2 are unpatentable under 35 U.S.C. §103(a) over Hayes in view of Fleming et al and Cline et al.

VII ARGUMENTS

REJECTION UNDER 35 U.S.C 103(a)

The device of Senf does not disclose reciprocating piston pumps as claimed but rather discloses gear pumps (col. 3, lines 50-62) and then goes on to discuss the issues associated with such pumps in attempting to proportion materials of varying viscosity (col. 3, line 63 - col. 4, line 6). Accordingly, such gear pumps (which are not reciprocating piston pumps as claimed - see http://en.wikipedia.org/wiki/Gear_pump for a general discussion) are not true positive

displacement pumps of the particular type claimed and which provide the enhanced performance at relatively lower cost and complexity.

Cline does not make up for the lack of claimed limitations. Cline shows a complicated system but does not show one which monitors the higher of the two pressures (Cline compares one or both pressures to a setpoint but does not mention comparing the higher of the two) and which compares it to a single set point as claimed.

Similarly, one would not remove gear pumps from Senf given that the object of Senf is to compensate for the problems of gear pumps.

Claims 1 and 2 also stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hayes in view of Flemming and Cline. It is respectfully submitted that claims 1 and 2 as submitted patentably distinguish over the rejection of record. It is further submitted that the need to combine three references to provide the claimed limitations presents a prima facie case of unobviousness.

Hayes discloses a system for dispensing material to be diluted, typically by water (col. 1, lines 17-26). Such materials are not considered plural component materials as would normally be understood by one of ordinary skill in the art. As commonly understood, plural component materials have 2 or more components that chemically react with one another. Dilution is not a chemical reaction. Further rather than as claimed, Hayes connects the outlet 39 of the concentrate pump 41 to the inlet 29 of the other pump 23. Thus there is more than one pump between the concentrate and the work station, which in turn is not disclosed as an application device such as a spray gun.

Flemming discloses a dispensing system having multiple pumps for alternatively dispensing various colored materials (col. 5, lines 46-54). Only one color is dispensed at a time and the others are recirculated back to the reservoirs. Because this is metered dispensing using a stepper motor, there is no pressure control nor any need for such. Colorant dispensing is typically a low pressure operation.

Cline shows a complicated system but does not show one which monitors the higher of the two pressures (Cline compares one or both pressures to a setpoint but does not mention comparing the higher of the two) and which compares it to a single set point as claimed.

Overall, while there might arguably be a reason to combine any two references, there is no reason one skilled in the art might combine all three references applied in the Office Action. The only suggestion to do so comes from Applicants' disclosure. The use of positive displacement reciprocating piston pumps as claimed allows the system to stall against pressure and not have to worry about pressure bleeding off through gear pumps through slippage.

Accordingly, it is also respectfully submitted that the rejection under 35 U.S.C 103(a) of claims 1 and 2 is in error for the reasons set forth above and should be reversed.

VIII APPENDIX OF CLAIMS

1. A proportioner for dispensing plural component materials, said proportioner comprising:

A variable speed electric motor having a shaft and first and second ends, said shaft extending from each of said ends;

a first reciprocating piston pump attached to said first motor end, said pump being connected to a source of a first material and having an output which has a first pressure;

a second reciprocating piston pump attached to said second motor end, said pump being connected to a source of a second material and having an output which has a second pressure, said pumps simultaneously pumping said materials to an applicator without passing through another pump; and

a controller with provision for a user-selectable pressure setpoint, said controller continually comparing said first and second pressures and regulating the higher of said pressures to said setpoint, said first and second pumps being the only pumps between said material sources and said outputs.

2. A proportioner for dispensing plural component materials, said proportioner comprising:
- a variable speed electric motor having first and second ends;
 - a first reciprocating piston pump attached to said first motor end, said pump being connected to a source of a first material and having an output which has a first positive pressure;
 - a second reciprocating piston pump attached to said second motor end, said pump being connected to a source of a second material and having an output which has a second positive pressure, said pumps simultaneously pumping said materials to an applicator without passing through another pump; and
 - a controller with provision for a user-selectable pressure setpoint, said controller continually monitoring said first and second pressures and providing an alarm in the event one of said pressures falls to a predetermined percentage of said setpoint.

IX EVIDENCE APPENDIX

NONE

X RELATED PROCEEDINGS APPENDIX

NONE

Respectfully submitted,

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